

DEPARTMENT OF THE INTERIOR – AVIATION MANAGEMENT

AIRCRAFT RENTAL AGREEMENT PROVISIONS: SUPPLEMENT NO. 19

SPECIAL USE – MARINE MAMMAL THERMAL SURVEY ON CENTRAL BERING SEA OF ALASKA

Definition

Airplane Marine Mammal Thermal Tracking on Central Bering Sea of Alaska: Surveys of Marine Mammals conducted along the Central Bering Sea of Alaska while over water at altitudes between 1000 feet MSL and 10,000 feet MSL.

B8.19.1 GENERAL – See Section B1.

B8.19.2 OPERATIONS

B8.19.2.1 Aircraft must be a high wing, multi-engine aircraft.

B8.19.2.2 Aircraft must be certified for IFR and known icing.

B8.19.2.3 Aircraft shall be capable of a survey speed of 110 Knots. The survey speed shall not be greater than power off stall speed + 30 % (clean configuration/no gear/flaps) at MCGW. VMC shall be at least 10 knots below the survey speed in this configuration.

B8.19.2.4 Aircraft endurance shall be six hours (6 hours) with an additional 45 minutes reserve at 120 knots at sea level.

B8.19.2.5 Cruising airspeed: 150 KTS, TAS (cruise power and 5,000 ft. operational altitude)

B8.19.3 PERSONNEL REQUIREMENTS

B8.19.3.1 Pilot Requirement

B8.19.3.2 Pilots shall display evidence of experience in using all equipment specified. (Satellite phone, GPS, etc.). Pilots may be required to demonstrate proficiency during the agency evaluation flight. Pilot may use an abbreviated checklist.

B8.19.3.3 Pilots shall demonstrate their ability to perform the following functions with the required GPS. The pilot may use only an abbreviated checklist in the performance of this evaluation.

B8.19.3.4 Determine the geographic coordinates of a destination identified on a sectional aeronautical chart.

B8.19.3.5 Install destination coordinates.

B8.19.3.6 Acquire distance/bearing information to a destination.

B8.19.3.7 Record as a waypoint, coordinates of various locations while enroute to a primary destination.

B8.19.3.8 Navigate from a present position to a selected recorded waypoint or between two recorded waypoints.

B8.19.3.9 Pilots shall have logged minimum-flying time as pilot-in-command as follows:

B8.19.3.9.1 3,000 hours Total pilot time

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B8.19.3.9.2	1,200 hours	PIC, airplanes
B8.19.3.9.3	200 hours	Category and class to be flown
B8.19.3.9.4	250 hours	Large airplanes (if large airplane)
B8.19.3.9.5	100 hours	Night flying to include the recent flight experience requirements of FAR 61.57(b)
B8.19.3.9.6	75 hours	Actual or simulated instrument flight time (including 50 hours in flight)
B8.19.3.9.7	100 hours	Total time in the preceding 12 months
B8.19.3.9.8	10 hours	PIC in class in the last 60 days
B8.19.3.9.9	5 hours	Total time in make and model, preceding 30 days
B8.19.3.9.10	50 hours	Total time in make and model
B8.19.3.9.11	500 hours	Cross-country
B8.19.3.9.12	100 hours	Multi-engine in the Arctic Ocean, Aleutian Chain, Arctic Coastal Environment, or other similar flying experience subject to the approval of the Contracting Officer

B8.19.3.9.13 The Vendor shall submit an experience resume for each pilot offered for approval. The resume shall include names and addresses of past employers, substantiation of related type flying and must show any and all accidents involving aircraft. The information shall be submitted on Form OAS-64A (with supplements if requested), Airplane Pilot Qualifications and Approval.

B8.19.3.9.14 Pilots shall be knowledgeable of IFR, VFR, and slow flight procedures.

B8.19.3.9.15 Pilots shall be required to demonstrate proficiency during an initial agency evaluation flight.

B8.19.3.10 Personal Protective Equipment (PPE). The following items shall be worn by the pilot, be operable, and maintained in good repair:

B8.19.3.10.1 An aviators' protective helmet is not required in multiengine fixed wing airplanes.

B8.19.3.10.2 Vendor personnel, while flying, shall wear a long-sleeved shirt and trousers (or long-sleeved flight suit) made of fire-resistant polyamide or aramid material, leather boots, and leather, polyamide, or aramid gloves. The long-sleeved shirt shall overlap the gloves, and the pants shall overlap the boots by at least 2 inches. Personnel shall not wear clothing made of non fire-resistant synthetic material under the fire-resistant clothing described above.

B8.19.3.11 Life Preservers (TSO-C13) required by 14 CFR 135 shall be on board and readily available when the aircraft is operated over water and beyond power-off gliding distance to shore.

B8.19.3.12 Anti-exposure suits shall be readily available to each occupant of the aircraft when conducting extended over water flight and when the water temperature is estimated to be 50 degrees Fahrenheit or less. When conducting low level surveys the suits shall be donned at least to the waist.

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B8.19.3.13 Life Raft. The Vendor shall furnish a life raft(s) rated for a total of six (6) occupants (not overloaded). The raft(s) shall meet TSO C-70 Type II standards and also the extended over water requirements of 14 CFR Part 135.167. The raft(s) shall provide a full canopy system. The raft(s) location shall be readily accessible for deployment from the main cabin door.

B8.19.4 EQUIPMENT REQUIREMENTS

B8.19.4.1 A strobe light, with either a white, or ½ white and ½ red lens, mounted on top of the aircraft, or otherwise visible from above. If the aircraft certification requires the anticollision light to be aviation red, then a white strobe light with an independent activating switch shall be provided in addition to the red strobe.

B8.19.4.2 A first aid kit containing items specified in Exhibit 4 shall be furnished by the Vendor and carried aboard the aircraft on all flights.

B8.19.4.3 A survival kit containing items specified in Exhibit 4 shall be furnished by the Vendor and carried aboard the aircraft.

B8.19.4.4 If additional fuel is required to meet the endurance requirements of the order, the Vendor shall furnish a 100-gallon, minimum, auxiliary fuel tank system. The system shall be comprised of a totally FAA approved external wing mounted system.

B8.19.4.5 The following equipment shall be FAA approved, installed and maintained in accordance with all provisions of 14 CFR 43.

B8.19.4.5.1 Aircraft two first row windows shall be bubble windows, one on each side of aircraft, which provides unrestricted downward and forward visibility. Windows shall be fitted, contoured, and attached to the full size of the window opening allowing only a reduction necessary to accommodate the structure. The vertical dimension of the left side of the aircraft shall be 14 ¾ inches and the horizontal dimension 14 1/2 inches with a depth of 5 inches. The vertical dimension of the right side of the aircraft shall be 14 7/8 inches and the horizontal dimension 19 ½ inches with a depth of 6 ½ inches. These are minimum dimensions.

B8.19.4.5.1.1 The defogging air source shall be ducted from the cabin heat system.

B8.19.4.5.1.2 The forward camera hatch shall have a dimension of 8 inches wide by 8 inches long. This hatch shall be positioned so that a camera-mounting bracket can be attached to the hatch. This system shall require connection to 110 VAC with circuit breaker protection of 25 amps. Isolation mounts shall be provided by the vendor for the camera. This system shall be approved by the FAA.

B8.19.4.5.1.3 The second camera hatch shall have a dimension of 11.5 inches long by 16.75 inches wide. With this size opening, the sensor lens must be 1 inch or less from the outside skin of the aircraft. There shall be a scan head-mounting bracket mounted to the hatch. The scan head shall be mounted internal of the aircraft skin/hull. The hatch shall be at the rear station of the aircraft. Isolation mounts shall be provided by the vendor for the camera. This system shall be approved by the FAA.

B8.19.4.5.1.4 The ABS/AMS scanner has an electronic rack that attaches to the aircraft seat tracks for all supporting electronic and data storage systems. This system is GFE and has a weight of 200 pounds. The installation of this rack shall be approved by the FAA.

B8.19.4.5.1.5 The ABS/AMS power input requirements shall be 40 amps peak and continues 30 amps DC. Connector type at aircraft panel is Amphenol 22-22S mates to the system cable WDE094. Connector wired as Follows: Pin "A" is 28 VDC return with 0 VDC, Pin "B" is 28 VDC return with "0" VDC, Pin "C" is +28 VDC input with 28 VDC and Pin "D" is +28 VDC input with 28 VDC. This power source and wiring connections shall be approved by the FAA.

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B8.19.5.5.1.6 The Vendor shall furnish 115 VAC, 60 cycles, terminated in an AC receptacle (household style with ground prong hole) with ability to plug in two electrical cords, located at the forward camera hatch. The total load requirements will be approximately 2.5 amps.

B8.19.5 AVIONICS REQUIREMENTS

B8.19.5.1 Avionics Requirements. The following systems shall be furnished, installed, made operable and maintained by the Vendor in each agreement aircraft in accordance with the installation and maintenance standards of this agreement.

B8.19.5.2 Communications Requirements

B8.19.5.2.1 Two panel-mounted VHF-AM (VHF-1, VHF-2) aeronautical mobile transceivers, each operating in the frequency range of 118.000 to 135.975 MHz, with a minimum of 720 channels in no greater than 2.5 kHz increments, and a minimum of 5 watts carrier output power, shall be installed in the aircraft. Each transceiver's operational controls shall be mounted in a location which is readily visible and accessible to both pilot and front seat observer.

B8.19.5.2.2 One 32,000-channel HF-SSB/AM aeronautical transceiver (HF-1), operating in the 2 MHz to 18 MHz band, FAA approved to TSO-C31c and TSO-C32c, and a minimum of 100 watts PEP output.

B8.19.5.2.3 **Satellite Phone System.** The Government shall furnish a Satellite Phone system SATTALK II (IST-410) to be installed and maintained by the vendor. The system consists of the following: Iridium telephone handset (Motorola 9505), SATTALK audio controller box (approximately 5.5" x 3.125" x 1.5"), phone cradle, SATTALK RF interface cable, and L band SATTALK antenna (Sensor System PN S67-1575-109). (Sky Connect Series Installation Manual sent upon request from DOI AM)

B8.19.5.2.3.1 The Iridium telephone (Motorola 9505) shall be mounted in the furnished cradle at a convenient location in the cockpit area. The location should provide ready and unencumbered access to the keypad on the handset by both the pilots and forward observer. The TNC connector from the installed antenna coax cable shall be provided at the phone cradle location to connect to the internal antenna adapter on the handset.

B8.19.5.2.3.2 The SATTALK audio controller unit shall be mounted near the audio control panel. The interface box is plugged into the aircraft ICS system to integrate the Iridium phone into it. The audio interface box shall be powered by the aircraft electrical system (28 VDC) with a .5 amp circuit protection provided.

B8.19.5.2.3.3 The TSO C-129a L band antenna (Sensor System PN S67-1575-109) shall be installed on top of the fuselage. The location of the antenna shall allow the antenna cable to be attached to the antenna and to reach the satellite phone mounted in the cockpit. Blockage of the antenna by the fuselage and the vertical stabilizer shall be avoided. Antenna mounting in proximity to a GPS antenna must be avoided. (Sky Connect Series Installation Manual sent upon request from DOI AM)

B8.19.5.2.4 **Automated Flight Following System.** The government shall furnish an Automated Flight Following System (AFFS). The AFFS shall be installed and maintained by the vendor in accordance with 14 CFR 43.

B8.19.5.2.4.1 A primary AFFS consists of the following:

B8.19.5.2.4.1.2 An LMC SKYNODE transmitter contained in a standard electronics box of approximately 4" W x 5" L x .5" D. Weight is approximately four ounces. The LMC shall be mounted so as to allow necessary cable connections with the Iridium phone system, GPS antenna, and a power source. Power shall be provided at 28 VDC with one-amp circuit protection.

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B8.19.5.2.4.1.3A separate aircraft type GPS antenna shall be provided to provide signal to the SKYNODE. The antenna shall be externally mounted consistent with standard practice and providing cable access to the LMC. The antenna shall provide a five-volt bias and the cable shall terminate in an SMA plug compatible for the SKYNODE transmitter. (Sky Connect Series Installation Manual sent upon request from DOI AM)

B8.19.5.2.4.2 Satellite Tracking System. The Government shall furnish an Electronic Flight Following System (EFFS). The system consists of the following: a receiver/transmitter contained in a composite case of approximately 8" H x 8"W x 4' D with a weight of approximately 4 pounds; a SATCOM antenna, and associated power connectors and wax cables. The vendor shall install and maintain the EFFS in accordance with 14 CFR 43.

B8.19.5.2.4.2.1 The vendor shall install the R/T in a location where the LED's on the box are visible for troubleshooting. This may require a specific orientation for mounting to be visible through a baggage compartment door, access panel, etc. Power shall be provided at 28 VDC with 2.5 AMPS circuit protection provided. Power should be sourced from the avionics bus.

B8.19.5.2.4.2.2 The DO 160 shark fin antenna (Sensor system p/n S-65-8282-101 or equal) shall be mounted on top of the fuselage. The location shall allow the single RF cable of approximately 6 feet to attach between the antenna and the R/T. Blockage of the antenna by the fuselage or vertical stabilizer shall be avoided. Antenna size is approximately 3.5" x 3.5" x .5", weight is 5 ozs.

B8.19.5.3 Navigational Systems

B8.19.5.3.1 Two VHF airways navigation VOR/LOC receiver systems with indicators, minimum of 100 navigation receive channels.

B8.19.5.3.2 One glideslope system, 20 receiver channels.

B8.19.5.3.3 One marker beacon receiver system with three light indicator.

B8.19.5.3.4 Two Automatic Direction Finder (ADF) receiver systems, each with a frequency range of at least 200 to 1,699 kHz, connected to the RML; or one ADF system with the above specifications and one FAA-approved IFR GPS system.

B8.19.5.3.5 One DME distance measuring system, 100 channel minimum.

B8.19.5.3.6 One Global Positioning System (GPS) meeting the following requirements:

B8.19.5.3.6.1 One panel-mounted GPS shall be permanently installed in the aircraft, in such a manner as to be readily visible and accessible to both the pilot and front seat observer positions. The GPS shall be capable of being coupled to the aircraft autopilot system, and shall reference latitude and longitude coordinates for aircraft positioning, utilize an approved, fixed, external aircraft antenna, and be powered by the aircraft electrical system. Hand-held and/or marine equipment is not acceptable.

B8.19.5.3.6.2 A GPS data port connector shall be installed for the purposes of external data retrieval by a GIS laptop computer. The connector shall be a DB-9F type D sub-connector, shall be wired for RS-232C serial format for laptop computers and shall be routed (through shielded wiring) to the location of the Government-furnished computer at the data entry station.

B8.19.5.3.6.2.1 The shielded wiring shall be terminated in a DB-9 pin female connector. The connector shall be wired as follows:

Pin Number Description

2RD - receive data

3TD - transmit data (including latitude, longitude, and altitude information)

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5signal ground
4DTR - data terminal ready (jumper to DSR)
6DSR - data set ready
8CTS - Clear to send (jumper to Request to send)
7RTS - Request to send

B8.19.5.4 Audio Systems

B8.19.5.4.1 Two separate audio control systems (which may be combined in a single unit) shall be provided for the pilot and observer/co-pilot, in a location convenient to both. Each system shall provide pilot and observer/co-pilot with separate controls for selection of receiver audio outputs and transmitter microphone/PTT audio inputs for all installed radios and PA systems. Each system shall also provide pilot and observer/co-pilot with separate controls for adjustment of both ICS and receiver audio output levels.

B8.19.5.4.1.1 Transmitter selection and operation. Separate transmitter selection controls shall be provided for the microphone/PTT inputs of both pilot and observer/copilot. The system shall be configured so that the pilot and observer/co-pilot may each simultaneously select and utilize a different transmitter (or PA system when installed) via their respective microphone/PTT. Whenever a transmitter is selected, the companion receiver audio shall automatically be selected for the corresponding earphone. Transmitter sidetone audio shall be provided for the user as well as for cross-monitoring via the corresponding receiver selection switch on the other audio control system.

B8.19.5.4.1.2 Receiver selection and operation. Separate controls shall be provided for both pilot and observer/co-pilot selection of audio from one or any combination of available receivers. Any ICS-equipped aft seat passenger positions shall monitor the receiver(s) as selected by the observer/co-pilot. The receiver audio output shall be free of excessive distortion, hum, noise, and crosstalk, and shall be amplified sufficiently to facilitate ease of use in a noisy cockpit/cabin environment.

B8.19.5.4.1.3 The controls of the audio system(s) must be located and arranged so that both the pilot and observer/co-pilot, when seated, have full and unrestricted movement of each control without interference from their clothing, the cockpit structure, or the flight controls. Labeling and marking of controls shall be clear, understandable, legible, and permanent. Electronic label maker marking is acceptable.

B8.19.5.4.2 An Intercommunications System (ICS) shall be provided for the pilot, observer/co-pilot, and a minimum of four aft cabin passenger positions. ICS audio shall mix with, but not mute, selected receiver audio. Adjustment of the ICS audio level at any position shall not affect the level at any other position. A "hot mic" capability, controlled via voice activation [VOX], shall be provided for each position above. ICS sidetone audio shall be provided for the earphones corresponding with the microphone in use. The ICS audio output shall be free of excessive distortion, hum, noise, and crosstalk, and shall be amplified sufficiently to facilitate ease of use in a noisy cockpit/cabin environment.

B8.19.5.4.2.1 The ICS system shall be provided with a selectable isolation feature, which allows the cockpit flight crew to disconnect their ICS system from that of the aft cabin. When so selected, the ICS of the aft cabin positions shall remain functional to those positions.

B8.19.5.4.2.1 The Vendor shall provide a separate microphone jack to connect to the Government's portable data (audio) recorder at one of the data entry seat positions. The microphone jack shall have an impedance interface to allow the recording of interphone audio from this position on the Government furnished Data Recorder (Panasonic Model RQ212 DAS recorder).

B8.19.5.4.3 Earphones, microphones, PTT's, and jacks:

B8.19.5.4.3.1 The system shall be designed for operation with 600-ohm earphones and carbon-equivalent, noise-canceling boom type microphones (Gentex electret type Model 5060-2, military dynamic typeM-87/AIC with CE-100 TR preamplifier, or equivalent).

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B8.19.5.4.3.2 J-033 and J-034 type connector jacks shall be provided at all required positions in the aircraft to accept the PJ-055B and PJ-068 type connector plugs as utilized with the headset/microphone.

B8.19.5.4.3.3 Separate PTT switches shall be provided for radio transmitter and ICS microphone operation at the pilot and observer/copilot positions. The pilot's and copilot's PTT switches shall be mounted on the control yokes. NOTE: PTT switches other than those mounted on the flight controls at the copilot position must be provided if that position is to be occupied and used by a crewmember other than a qualified copilot. The ICS-equipped aft seat passenger positions shall be provided with an ICS PTT switch mounted on the cord to the headset/microphone connector. NOTE: ICS PTT switches are not required for use with voice-activated (VOX) ICS systems.

B8.19.5.4.3.4 The Vendor shall furnish a minimum of five noise-attenuating headsets, each equipped with noise-canceling boom-type microphones, and volume controls for use in each aircraft.

B8.19.5.5 Other Avionics

B8.19.5.5.1 One ATC transponder system, and altitude reporting system, meeting the requirements of 14 CFR 91.215(a), and tested and inspected per 14 CFR 91.413. The transponder shall have been last tested during the one year period preceding the start or renewal date of the agreement.

B8.19.5.5.2 One Airborne Weather Radar System. The system shall be capable of surface mapping with clutter reduction. The range scale should provide good small scale reference such as a 2.5 NM maximum at the low end.

B8.19.5.5.3 One Horizontal Situation Indicator (HSI) fully integrated to the autopilot. The HSI shall display both VOR/LOC and GPS.

B8.19.5.5.4 One radio-magnetic indicator (RMI) with NAV-1/ADF1 on single needle and Nav 2/ADF2 on double needle. When IFR GPS is used in lieu of second ADF, the double needle on the RMI shall be Nav2/ADF1.

B8.19.5.5.5 One radar altimeter, with decision height warning system with a visual (light) warning indications.

B8.19.5.5.6 The Vendor shall install an Underwater Acoustic Beacon (Dukane Model DK-100 or equal) in the aircraft. The beacon shall be installed and maintained in accordance with the manufacturer's specifications and each 6-month testing shall be documented in the aircraft's maintenance record.

B8.19.6 MAINTENANCE REQUIREMENTS

B8.19.6.1 **Weight & Balance.** The aircraft's required weight and balance data shall be determined by actual weighing of the aircraft within 24 calendar months preceding the starting date of the agreement, or renewal date, and following any major repair or major alteration or change to the equipment list which significantly affects the center of gravity of the aircraft.

B8.19.6.1.1 All weighing of aircraft shall be performed on scales that have been certified as accurate within preceding 24 calendar months. The certifying agency may be any accredited weights and measures laboratory.

B8.19.6.1.2 A list of equipment installed in the aircraft at the time of weighing must be compiled. The equipment list shall include the name of each item installed. Items which may be easily removed or installed for aircraft configuration changes (seats, doors, radios, cargo hook, baskets, special mission equipment, etc.) shall also be listed including the name, the weight and arm of each item. Each page of the equipment list must identify the specific aircraft by at least serial number or registration number of the aircraft. Each page of the equipment list shall be dated indicating the last date of weighing or computation. The weight and balance

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must be revised each time new equipment is installed or old equipment is removed. Weight and balance procedures under 14 CFR 135.23(b) and 135.185 are acceptable.

B8.19.6.2 Time Between Overhaul and Life Limited Parts.

B8.19.6.2.1 All components, including engines, shall be replaced upon reaching the factory-recommended TBO or FAA-approved extension. Life limited parts shall be replaced at the specified time in service hours or cycles.

B8.19.6.2.2 Aircraft operated with components or accessories on approved TBO extension programs are acceptable provided: (1) the Vendor is the holder of the approved extension authorization (not the owner if the aircraft is leased), and (2) the Vendor operates in accordance with the extension authorization.

B8.19.6.2.3 The Vendor shall supply, at the time of the initial agency inspection, a list of all items installed on the aircraft that are required to be overhauled or replaced on a specified time basis. This list shall include the components name, part number, serial number, total time, service life (or inspection/overhaul time interval), and time and date when component was overhauled, replaced, or inspected.